

REMARKS/ARGUMENTS

Claims 1, 3-5, 7-9, and 11-15 are pending. Claims 1, 4, 5, 7-9, and 12 have been amended. New dependent claims 13-15 have been added. No new matter has been introduced. Applicants believe the claims comply with 35 U.S.C. § 112.

New dependent claims 13-15 each recite that the state of the communication path is changed in real time based on receiving failure information from the storage device. Because the information regarding the communication path being displayed is changed in real time, the information is displayed dynamically. Support for the new claims can be found, for example, in the specification at page 33, lines 10-21.

Claims 1, 3-5, 7-9, 11, and 12 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Yanai et al. (US 6,502,205).

Applicants respectfully submit that independent claim 1 is novel and patentable over Yanai et al. because, for instance, Yanai et al. does not teach or suggest a host computer having a function of displaying at a user interface a plurality of management information items expressing access status of a communication path for sending a data input/output request from the host computer to a storage device and returning result of the access request to the host computer, code for displaying information between a communication path ID of the communication path, a disk controller port ID of the disk controller port, a logical volume ID of the logical volume of the storage device, and state of the communication path indicating off-line or on-line; and code for changing the state of the communication path in which failure has occurred among displayed plurality of communication paths based on receiving failure information from the storage device, while a failure has occurred in any one of the displayed plurality of communication paths.

Applicants respectfully submit that independent claim 5 is novel and patentable over Yanai et al. because, for instance, Yanai et al. does not teach or suggest a host computer having a function of displaying at a user interface a plurality of management information items expressing access status of a communication path for sending a data input/output request from the host computer to a storage device and returning result of the access request to the host computer, a controller configured to update at least one of the

management information items being displayed to express present access status of the communication path when detecting that access failure occurs at the communication path based on an access to the storage device, and/or to update at least one of the management information items being displayed when receiving from the user interface an input for updating the management information items being displayed; wherein the management information items include a communication path ID of the communication path, a disk controller port ID of the disk controller port, a logical volume ID of the logical volume of the storage device, and state of the communication path indicating off-line or on-line; and wherein the controller is configured to change the state of the communication path in which failure has occurred among displayed plurality of communication paths based on receiving failure information from the storage device, while a failure has occurred in any one of the displayed plurality of communication paths.

Applicants respectfully submit that independent claim 9 is novel and patentable over Yanai et al. because, for instance, Yanai et al. does not teach or suggest a host computer having a function of displaying at a user interface a plurality of management information items expressing access status of a communication path for sending a data input/output request from the host computer to a storage device and returning result of the access request to the host computer, displaying information between a communication path ID of the communication path, a disk controller port ID of the disk controller port, a logical volume ID of the logical volume of the storage device, and state of the communication path indicating off-line or on-line; and changing the state of the communication path in which failure has occurred among displayed plurality of communication paths based on receiving failure information from the storage device, while a failure has occurred in any one of the displayed plurality of communication paths.

In short, the present invention provides, among others, the following features not taught or suggested in Yanai et al.:

(1) a plurality of access paths between the host computer and the storage device, configured such that in accordance with a failure of any one of the access or communication paths, the status information concerning the failure path among path information (path ID, port ID, LUN, and path status) relating to a plurality of paths displayed

on the host display is changed (e.g., switched from "on line" status to "off line" status); whereby the status concerning a plurality of access paths between the host computer and the storage device can be provided to the user or manager in real time;

(2) monitoring of a plurality of communication paths used for accessing from the host computer to the logical volume in the storage device, and dynamically displaying information between a communication path ID of said communication path, a disk controller port ID of said disk controller port, a logical volume ID of said logical volume of said storage device, and state of said communication path indicating off-line or on-line;

(3) changing the state of the communication path in which failure has occurred; and

(4) receiving failure information from the storage device while a failure has occurred in any of the displayed communication paths, and using that failure information to change the state of the communication path in which failure has occurred.

First, Yanai et al. is directed to remote copy between a plurality of data storage systems 14, 46 (col. 8, lines 18-23; col. 12, line 56 to col. 13, line 6; and col. 32, lines 47-48). Yanai et al. does not disclose the configuration in which in accordance with a failure of any one of the access or communication paths, the status information concerning the failure path among path information is switched from "on line" to "off line" in (1).

Second, Yanai et al. discloses monitoring of remote copy between a plurality of data storage systems 14, 46 by host mirroring software 213 (col. 8, lines 18-23; and col. 12, line 56 to col. 13, line 6). Yanai et al. does not teach displaying the information in (2).

Third, Yanai et al. is concerned with a failure of data transfer between a plurality of data storage systems 14, 46 (col. 8, lines 18-23; col. 12, line 56 to col. 13, line 6; and col. 32, lines 47-48). Yanai et al. is not concerned with failure in paths utilized for accessing from the host computer to a logical volume of the storage device, and does not disclose changing the state of the communication path in which failure has occurred in (3).

Fourth, Yanai et al. discloses failure or non-operation of the data storage system 14 by a disaster at a local site (col. 32, lines 1-16). Because Yanai et al. discloses disaster at the local site, it becomes necessary to re-start data storage system after the disaster

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of the local site so that all the channel interface becomes on line (col. 32, lines 1-16; and col. 32, lines 47-48). Yanai et al. does not collect and display information relating to failure of communication paths for access from the host computer to the storage device in (4).

For at least the foregoing reasons, independent claims 1, 5, and 9, and dependent claims 3, 4, 7, 8, 11-15, are novel and patentable over Yanai et al.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,



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